A CASE OF SO-CALLED POLIENCEPHALITIS.

A PRELIMINARY NOTE.

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A lady, aged thirty, of negative family and personal history, was first seen September 30th, 1896. The first symptom of her existing illness had appeared about two months before as a well-marked bulimia which remained the sole manifestation for two or three weeks, and gradually diminished as the other symptoms appeared. The next trouble noticed was difficulty in swallowing, and to this were added confused vision, then distinct diplopia, a feeling of thickness and clumsiness of the tongue, and general weakness with special involvement of the shoulder and upper arm muscles, the grasp remaining comparatively strong. There had been no distinct cephalalgia and no mental disturbance.

Examination showed external ophthalmoplegia, incomplete bulbar paralysis, weakness of the neck muscles, almost complete paralysis of the deltoids and general myasthenia. Lateral movement of the eyes was almost *nil*, vertical motion was better but very limited; there was no distinct ptosis, the pupils reacted to light but not to accommodation. The lower facial and neck muscles seemed weak, but there was no localized paralysis or atrophy, excepting, possibly, some wasting of the sternal head of the right sterno-mastoid. The tongue was weak and seemed small, but was not atrophic and was fairly well protruded. Deglutition was difficult, but there was no regurgitation through the nose. Although the deltoids were powerless, they were not atrophied, and they reacted promptly to the faradic current, as did also the muscles of the face and neck.

The lower extremities were weak only, and the knee-jerks were normal.

For a few days after this she was thought to improve somewhat, but soon came to a standstill, and October 10th, that is, ten days from the time I saw her, she grew decidedly worse, was greatly troubled by the accumulation of mucus in the throat (and probably trachea), and by increased difficulty in swallowing. Two days later she was still worse, respiration became greatly embarrassed, the general prostration extreme, and the temperature, before normal, rapidly rose to 102. I was hurriedly sent for and arrived a very few minutes before death. I found her perfectly conscious but laboriously gasping for breath. There was no stenosis, the respirations were rather slow and quite shallow, the mouth was open, with each inspiration it was still further opened, and every particle of vitality seemed concentrated in the effort to accomplish the respiratory act. The diaphragm was apparently paralyzed, but the neck muscles acted. The pulse was rapid, but not so weak as the patient's state would indicate. On demand she protruded the tongue, pursed the lips, grasped my hand and moved the lower extremities. A moment later the gasps became less frequent—exactly like those of a dying person, the eyes closed, the pulse flagged, and she apparently became unconscious. In about half a minute, however, respiration improved, the pulse came up and she opened her eyes. This really was only momentary, and she died about five minutes later, respiration ceasing before the pulse.

At the autopsy, which I made ten hours later, nothing abnormal could be seen. The cord was not obtained. The brain, pons and medulla were hardened in Müller's fluid, and sections were stained with uranium carmine, hematoxylin-eosin, according to Weigert, Pal, Rosin, and Nissl, excepting, of course, the alcoholic hardening required by the latter stain. Unstained sections were mounted in glycerine, and at several levels slices were stained according to Marchi.

The microscopic findings are unexpectedly meagre. There is no increase of nuclei, no migration of leucocytes, and, so far as I have examined (about one thousand sections), no hemorrhages, except one very small one. There is no degeneration of fibres excepting, possibly, a few in the intramedullary root of the facial. The capillaries and arterioles are enormously distended throughout, and in some places the perivascular spaces seem to be also distended. Some of the cells in the facial and abducens nuclei seem to show, with the Marchi stain, evidence of slight degeneration. A large number of granules, chiefly grouped around the nucleus of the cell, are stained an opaque black. Some such fine, black masses are often found in normal cells stained with osmic acid, but not to the extent seen in these specimens. Abnormal changes in the other nerve nuclei are almost problematical but, I think, exist.

From the clinical picture and microscopic examination, as far as made, the case seems to me to be one of toxemia of some kind, and a transition case between two classes of nervous disease heretofore described as entirely distinct. On the one hand, the acute poliencephalitis of Wernicke, acute poliomyelitis and possibly acute neuritis, and, on the other hand, the cases of ophthalmoplegia and bulbar paralysis that have now and again been reported with negative microscopic findings, and the clinically observed cases of supposed purely functional character—so-called asthenic bulbar paralysis. My case indicates that all will be found to belong to the same class.

In the light of modern therapeutics, I must venture to suggest that the proper treatment of such cases would be the procedure rather picturesquely termed "washing the blood"; that is, copious phlebotomy wtih simultaneous transfusion or subcutaneous injection of normal salt solution.

Session of May 5th.

A STUDY OF A CASE OF ENCEPHALITIS, WITH CHANGES IN THE PIA.

Dr. Alfred Wiener, of New York, read a paper on this subject, and reported the case of a child, three years of age, who, after meeting with an accident, suffered from an attack of acute (non-suppurative) meningo-encephalitis. The child recovered after six months of illness. It remained perfectly well, and after an interval of three years, just subsequent to an attendance of three months at school, had a second attack which proved fatal. The autopsy and microscopic examination showed an involvement of the pia as well as of the brain, and the characteristic picture of acute non-suppurative hemorrhagic encephalitis. He believed the first attack was due to traumatic influences. The second attack was supposed either to be due to influenza, on account of the suspicious catarrhal symptoms present at the beginning of the attack, or to be a result of mental strain in a child predisposed to such an attack. Special attention was called to the involvement of the pia, which represented a pathologic condition often found in simple fibrinous pleurisy.

Dr. Joseph Collins reported, as a contribution to the symptomatology and pathologic anatomy of

ACUTE, HEMORRHAGIC, NON-PURULENT ENCEPHALITIS.

the history and autopsy record of the following case:—

A young man, twenty-two years old, was admitted to the City Hospital in the latter part of January, of the present year. The history that was obtained from his parents was, that he had never been sick, but that he had always been somewhat delicate and never as bright mentally as the average lad. His mother is positive that he was quite well until the present illness, which came upon him very suddenly while he was repairing a door latch. He suddenly fell over, without making any outcry, and since this event has not spoken a word. This was two weeks before he came into the hospital. Very little could be learned of the boy's condition during that fortnight, as he did not seem to have had any regular medical attendance. The mother says that he was "out of his head" most of the time, restless and continually moving even while asleep; that he refused to take food, soiled the bed and did not recognize anyone about him. He was carried to the hospital on a stretcher and put in the wards of Dr. Brewer, who requested me to see him.

The patient was in a dazed, staring, non-observant condition, with the neck slightly arched backward and stiffened. The continual movement of the patient impressed one greatly on seeing him for the first time. The movements, on analysis, were seen to affect particularly the left hand and forearm, and were almost exactly like those described as athetoid. They were rhythmical, continuous, and consisted of repeated flexion, extension and rotation of the hand, and involved the entire upper extremity. The entire left side of the body, including the face, was spastic. There was no movement of the right side of the body, and this side, instead of being spastic, was flaccid to such a degree that one was inclined to believe that there was a slight hemiparesis, but this side of the body could still be moved. There were peculiar incoordinated movements of the eyeballs when they were directed to the extreme right or left. The sensorium was very much obtunded, but there was no appearance of coma. The patient made no response to questions, and in no way gave evidence that he understood what was said to him, nor did he take particular notice of members of his family who visited him. The pupillary light reflex was present, but the pupils did not contract to a very small point. There were no cranial nerve palsies. He neither rested nor slept. His general condition was aptly and fully described by the term *typhoidal;* the general aspect was one of a patient suffering from some profoundly infectious disease. He emaciated rapidly, so that after a few days in the hospital nearly all the adipose tissue had disappeared. The temperature was constantly slightly elevated; the pulse was sometimes about normal, sometimes beating as often as one hundred times per minute; the respirations were slow.

The patient's condition became every day more unsatisfactory, the sensorium more sluggish, the athetoid movements of the left hand less constant and pronounced, the rigidity more marked in the left leg, but less so in the upper extremity; and the flaccidity and paresis of the right side more strongly in contrast. There was incontinence of urine and feces, and a bedsore developed over the sacrum. There was conjugate deviation of the eyeballs toward the left, and Cheyne-Stokes respiration preceding the *exitus letalis*.

On opening the calvarium the dura was found to be normal. There was marked excess of the cerebrospinal fluid, which was of its customary appearance. The pia was deeply congested and somewhat edematous, especially over the central regions. The supertemporal lobe of the left hemisphere, and the lower third of the Rolandic area of the same side, appeared to be edematous, and had a pulpy, soggy feel, which was in marked contrast to the other convolutions of the brain. On the right hemisphere there was a depression situated at the junction of the Sylvian and central fissures, about an inch and a half in diameter, which was softened, pultaceous, and contained a serous, sanguinolent fluid. This area of softening involved principally the anterior central convolution.

If we recapitulate the symptoms in this case, they are briefly:

1. Sudden, unheralded onset, apoplectiform in character.
2. Somnolence; obscuration of the sensorium; sensory aphasia.
3. Spasticity of the left side of the body; athetoid movements of the left hand.
4. Flaccidity of the right side of the body; right-sided hemiparesis.
5. Incoordination of the eyeballs on lateral movement.
6. Stiffness of the neck and great restlessness.
7. General accompaniments of profound infection; typhoid state.
8. Conjugate deviation of the eyeballs; Cheyne-Stokes respiration.

All these symptoms were dependent upon an acute, non-purulent encephalitis with two principal foci, one of which was in the left hemisphere and involved the supertemporal convolution—thereby causing aphasia—and the lower part of the motor area. The focus in the latter region was in a more advanced stage of disintegration than those elsewhere in the brain, and to destruction of tissue by this portion of the focus were due the flaccidity and right hemiparesis. The other focus was in the lower part of the motor area of the right hemisphere, and caused the athetosis and rigidity; but as it became more disintegrated as the disease advanced, the phenomena of irritation ceased and paralytic ones were manifested. A consideration of these symptoms and of the morbid findings seems to me most instructive and contributory to our knowledge of acute infectious encephalitis.

Dr. Spiller.—It seems to me that the resemblance of this cortical form of inflammation to the poliencephalitis superior acuta of Wernicke, of which Dr. Wiener has spoken, is striking, but I should go a little further than he has gone. The poliomyelitis anterior acuta has pathologically much in common with the two forms just mentioned. I have been able to examine specimens from acute encephalitis and from acute poliomyelitis, and I cannot say that there were any essential differences in the nature of the two processes. In both the small vessels were much distended and capillary hemorrhages were easily seen. The case of acute poliomyelitis to which I refer has been reported by Redlich, and he has stated that the foci of inflammation were not limited to the cord.

I may call the attention of the Association to the case of encephalitis reported last year by Lloyd and Sailer. In that case also the foci were widely distributed. The patient was supposed to be suffering from typhoid fever until paralysis of ocular muscles made the diagnosis improbable.

I saw a case with Dr. Mills some time ago which presented many of the symptoms of brain tumor. Dr. Sailer, who performed the necropsy, told me that he had observed multiple foci, which appeared to be similar to those reported by Dr. Lloyd and himself.

Dr. Dercum, of Philadelphia.—I would like to ask whether there were evidences of infection found in the general autopsy; what, for instance, was the condition of the kidneys, whether infarcts were present, or any other signs which would suggest an infectious disease.

Dr. Wiener.—There was an acute congestion found in the kidneys.

Dr. Sachs.—I would refer to a practical difficulty I experienced in the first case mentioned by Dr. Wiener, and one or two others; the practical difficulty of differentiating in the earlier stages between cases of meningitis and these cases of encephalitis. Even though Dr. Wiener found distinct evidences of involvement of the pia in this case after the first attack, it is of course doubtful whether that involvement existed at the first attack. This differential diagnosis is the great stumbling block in the way of making a diagnosis of encephalitis in the first beginnings of the disease. At present we have, so far as I can see, no point of diagnosis, except the general gravity of the disease and the fact that a large majority of these cases of encephalitis do not take the rapidly fatal course that the cases of meningitis do. The chronic forms of encephalitis, the combination of bulbar encephalitis with myelitis, can be understood much more clearly than they formerly were. The entire question of encephalitis is a burning one, and I think we must not only try to clear up the question of the pathology of the disease, but we also need a great deal more study with reference to the differential diagnosis between meningitis and encephalitis. In some, if not a majority of the cases, an encephalitis may be combined with a meningitis.

Dr. J. J. Putnam.—I did not hear Dr. Wiener's paper, but it seems to me that we do not, perhaps, sufficiently realize to what an extent the symptoms are of toxic origin in these cases, and this seems the more probable when it is remembered that the outcome is so often relatively favorable. Even where meningitis is present the actual influence at work, or a part of it, may be an accumulation of toxic substances.

Dr. Herter.—I remember a very instructive case, in which the microscopic examination of the patient (a child) showed that upon the right side there was a considerable area in which the pia had undergone a productive inflammation. There was no evidence of degeneration in the cortex.

Dr. Wiener.—I had hoped some of the members might have had some explanation to offer in regard to the inflammation of the pia, which I found in this case. I found such an extensive involvement that I thought many of the symptoms were due to this inflammation, viz., that they were symptoms of irritation.

I agree with Dr. Putnam that the violence of the symptoms is due, undoubtedly, to the toxic substances which might be present in the blood in these cases.

Dr. Joseph Collins, of New York, and Dr. B. Onuf, of New York, read by title the following paper:

THE PATHOLOGICAL ANATOMY OF HUNTINGTON'S CHOREA.

THE NATURE AND TREATMENT OF SPASMODIC TORTICOLLIS.

Dr. G. L. Walton, of Boston, read this paper. He considered spasmodic torticollis an affection of the cortical centres for rotation of the head. The pathogeny is not settled. The fact that it is sometimes easily inhibited does not establish a mental origin. Gross organic lesion is not present. Long continued habit may merge into spasm, as seen in certain occupations. Eye strain sometimes plays a part through causing faulty posture (oblique astigmatism, muscular insufficiencies). In one case it followed the wearing of a glass, which increased instead of relieving an oblique astigmatism.

The course of the disease is progressive.

The principal muscles affected are the sternomastoid, splenius capitis, complexus, trachelomastoid, and the inferior oblique.

The most common form implicates the sternomastoid of one side and the posterior rotators of the other; less frequently the spasm is limited to the sternomastoid, occasionally to the posterior rotators of both sides (retrocollis), and rarely to the sternomastoid and posterior rotators of the same side.

Treatment other than operation is ineffectual in well-established cases. Simple nerve section and nerve stretching are unavailing. The only operations to be considered are resection of nerves and section of muscles. Operations are generally too limited rather than too extensive. In most cases it will be necessary to resect the spinal accessory and the first three posterior branches of the cervical nerves. It will generally be wise to cut also the affected muscles. Muscle section alone has given good results (Kocher), but there is no reson to abandon nerve section.

Absolute cure cannot be expected in over half the cases, improvement occurs in a great proportion, and failure in a certain proportion.

Dr. Dercum, of Philadelphia.—We are indebted to Dr. Walton for his very able summary of the present status of the subject. I think, however, that we ought to be a little conservative with regard to our view of the pathology of the affection, especially that the lesion is limited to the cortex. I do not feel inclined to so regard it. It seems to me that the simple fact which was mentioned by Dr. Walton, that we sometimes have the disease coming on in the course of an occupation (I have seen it come on in quite a number of weavers) so that it simulates an occupation neurosis, would favor the idea that we have to deal with a trouble not only cortical but rather with a *corticospinal* disturbance of function.

With regard to the measures proposed for relief in these cases, I have, I think, never seen a single instance of absolute cure. I remember very well a case that was operated on at various times for me by Dr. Keen, a case in which at one time the spinal accessory nerve was resected, at another the insertion of the sternomastoid was cut, and still later the nerve supply of the short rotators was resected; and yet, notwithstanding the very great improvement in that case, there was subsequently some return of the movement. It seems to me that the muscles that may take part in the rotation of the head are so numerous—there are some nine or ten, possibly eleven, that may be involved—as to make the task of paralyzing all these muscles almost hopeless.

In regard to the benefit obtained in some of these cases by means of the rest method, I do not entirely agree with Dr. Walton. I believe that some of these cases are permanently benefited by prolonged rest, especially if they are made to lie continuously on a low pillow, are fed by the nurse and not even permitted to leave the bed to void the bladder or bowels; in other words when a rest almost absolute is instituted.

Again, there is one drug that does do some good in these cases, and that is gelsemium, which was introduced for the treatment of these cases some years ago by Weir Mitchell. Used in fifteen drop doses, three, four or five times a day, this drug undoubtedly does decrease the movement and gives a relative degree of comfort to the patient.

My own habit is to advise surgical interference in the majority of cases, and I think it better to divide the operation into two different periods, though I always defer to the surgeon on a point like this. I have never seen much benefit following section of the spinal accessory alone.

With regard to surgical interference, I think we ought to look at the matter from a philosophical standpoint, and we ought to expect as little from it, unless the operation be extensive, as we should expect in operating for writer's cramp, because there is a certain analogy between the two diseases.

The points to which Dr. Walton has called attention, the refractive troubles and color deficiencies in the eye, are of great interest, and I agree with him that we have to some extent neglected their study.

Dr. Dana.—There are, in my experience, three different phases which spasmodic torticollis assumes. One is the common form, seen usually in rather early life, and apt to be associated with neurasthenia and some hysterical manifestations. It is often the sequela of some shock or exhausting work, and is, as has been stated, allied to the professional neuroses. A second class of cases, somewhat similar but rather more serious, occurs later in life; it starts in like the facial tic and the facial neuralgias, and is a degenerative neurosis. The third, and by far the most serious kind, is one which develops at the choreic age, between twelve and fifteen, and has at first choreic symptoms associated with it. The malady steadily progresses, and the spasmodic movements of the neck associated with choreic movements finally become very severe. Such cases are progressive and incurable. In the treatment of torticollis, it is really only in the first class I have mentioned that we expect to benefit very much.

In regard to its pathology, I quite agree with the views expressed so positively by Dr. Walton. It seems to me that the most rational view of most cases is to suppose that the malady lies in the cortex of the brain. In one patient who suffered from that form of torticollis which I have described as the third type, and who had very severe spasmodic manifestations, death ensued, and I found a chronic leptomeningitis of the convexity of the brain, with some degeneration of the cells beneath.

As for the treatment of this trouble, I can quite agree with Dr. Dercum as to the value of rest; in fact, I do not think there is anything that is much good except rest, and I believe that if this is carried out really persistently, to an extent, perhaps, that few patients are willing to submit to, it will cure some cases and relieve a great many others. This is particularly true if you can take hold of the case in its early stages, a year or two after it begins. I think, too, that careful massage by intelligent persons helps a great deal in the management of the disease in connection with the rest, and sometimes even massage alone, in the early stages, carefully applied, will do a great deal of good, more than any other single measure, to those persons who will not take rest.

I do not believe myself that there is any drug that really does much good. I have tried gelsemium, and tried everything, and have never been able to convince myself that any drug did any permanent good, and I have not seen any good results from the opium treatment which Gowers recommended. It is always dangerous to recommend this.

As to the surgical treatment, it seems to me theoretically altogether irrational; practically I have never seen it, or any kind of mechanical treatment, do any good whatever. At the same time, I should be willing to admit that I have not had cases treated by the combined muscle section and nerve section, and I think that this extremely radical measure, where you practically cut off the head for a time, may prove a sort of a supplemental rest treatment, and in that way be classed under the head of rational measures.

Dr. Charles K. Mills.—Although I have had abundant clinical experience with this affection, having seen quite a large number of cases, and having treated them by all sorts of methods, I do not find that I have much to add to what has been said here this morning.

With regard to treatment, one form of treatment has seemed almost as good as another, but I would refer to one method of treatment which gave me my only real success in this disease. It was employed on a patient whose history was reported a number of years ago, and who remains to this day well, after having had a most serious case of torticollis. This patient got well under the use of the actual cautery, frequently repeated, two or three scores of times altogether, and the use of the iodide and the bromide of potassium.

I have treated cases with various sorts of drugs, and have had the most result from the use of gelsemium. In one case in particular the patient was very much relieved for a considerable time. The drug was pushed to toxic doses, fifteen or eighteen minims were administered every three hours toward the end of the treatment, and when we had thoroughly poisoned her with the drug the movement ceased and she remained better for some time, but the attacks afterwards returned.

As to the surgical treatment, I have had some experience. In a given case, the spinal accessory nerve was stretched, and then the nerve was tied with silver wire after the manner recommended by a London surgeon, and then the nerve was resected. I have seen several cases of muscle operation, and have never seen any decided or persistent results from any operation. Personally, I would confine the surgical and medicinal treatment to the following: The administration internally of gelsemium; the use in some cases of the iodides; the actual cautery applied to the back and the sides of the neck; and nerve stretching. I believe that you will get as good results after all from nerve stretching in these cases as you will from the more serious operations.

With regard to the nature of this affection, I think we are all "at sea." There does seem to be some reason for believing that some of the cases are of cortical origin. I am not, however, inclined to accept this explanation for a majority of the cases of the special type to which, I think, we all allude in this discussion.

The affection seems to me similar to some of the disorders of ocular movement. We have here probably an affection in which we have a disturbance of the cervical co-ordination.

Dr. M. H. Richardson.—The surgical treatment of spasmodic wry neck has been a subject of great interest to me for several years. In an encouraging percentage of cases great improvement has followed operative treatment, greater than has followed medical or palliative measures. Indeed, in practically all my cases operation has been undertaken only after the failure of all other methods. Although my experience has been almost entirely in favor of the surgical rather than of the medical treatment, I do not feel justified in operating unless the neurologist has declared himself satisfied that surgery offers the only reasonable probability of relief.

With reference to the pathology of spasmodic torticollis, I have observed that the nerves supplying the affected muscles seem healthy; they are large, strong bundles, unchanged in gross appearance; they respond quickly to mechanical irritation. In obstinate neuralgias, on the other hand, trunks like the third division of the fifth are evidently diseased. I have seen cases in which the affected branch was soft and friable, breaking under the slightest touch, and making avulsion impossible.

The affected muscles in spasmodic torticollis present no abnormal appearances.

These facts, with others, especially that of the rapid shifting of the spasm to remote groups, seem to point to a central rather than a peripheral origin.

The results after all methods of treatment present features both of encouragement and of discouragement. No method is unworthy of trial, and none is always successful. Every means should be employed which has been found after faithful use to be of value. Not that it is justifiable to waste time in the use of doubtful methods in cases of extreme severity, for it is sometimes clear that nothing short of the most extensive dissection offers a reasonable chance of benefit.

In moderate cases—cases in which the spasm is limited, the pain slight, the disability bearable—massage, electricity, enforced rest, should be faithfully and persistently employed. In cases of great severity, on the other hand, I am fully convinced that extensive destruction of the nerve supply, with perhaps muscle division, should be resorted to early rather than late, because of the danger of extension of the spasm to remote groups, and of the deeper fixation of the cause, whatever it may be.

Dr. W. W. Keen.—I was much interested in Dr. Dana's remarks. I was not aware that any necropsies had been made to determine whether the cases were cortical or not. I do not know whether there was any microscopic examination made in Dr. Dana's case or not; that, of course, would be very important. [Dr. Dana said they were made.] I have had one patient who suffered so severely that I proposed to him a cortical operation, having excised both the spinal accessory and also the posterior cervical nerves, but he never quite reached a favorable decision, and I was not sure enough of my ground to urge it; besides that, the determining factor was that he finally became so much better that he was able to return to his occupation, and therefore was not willing to have a further, and possibly rather dangerous, operation attempted.

It seems to me that in the matter of treatment we ought to be very sure: first, that the medical means that have been alluded to have been employed, and particularly gelsemium and absolute rest—the rest that was spoken of, I think, by Dr. Dercum—the patient not being allowed to move the head in any way. We ought to take a hint here from the value and success of this treatment in writer's cramp and such allied occupation spasms. The rest that we are able to secure in these cases should be as absolute as possible. Whether it is necessary to place a helmet or other apparatus on the head of the patient, in order to secure this absolute rest, I do not know. Then also, the eye condition should be looked into very carefully. But the moment that these means have been tried, and tried faithfully, and have failed, then I think the earlier the operation is done the better. We all know that in spasmodic affections, for example spasmodic neuralgia, there is a habit set up; a habit of pain as well as a habit of muscular spasm, and to delay operation is dangerous.

As to the types of torticollis, I have seen it in very many cases of hysterical persons, of course, but I have seen it in others, notably in the person to whom I referred a moment ago, who was a man very much of the build, vigor and robustness of Dr. Richardson himself, and as far as possible removed from any condition resembling hysteria.

My own results in operation have been almost all failures, so far as absolute cure is concerned. I do not know that I can point to more than one, or possibly two cases, of what we might call real cure, and even in these there was left generally some slight remnant of the spasm; but in great relief of the condition, a considerable proportion have been successful. Even in this case I allude to, which was one of the worst I ever saw, the man, a stout hearty fellow, recovered sufficiently to resume his occupation after both operations had been done.

The operations have been referred to as heroic or very radical. It is true in one sense that they are heroic or radical; a great deal is done, a number of nerves are cut or excised, a number of muscles are affected. But we ought to remember that these operations are not dangerous. I have never seen the slightest ill result from any operation I have done; and I have never seen a patient placed in danger of life from it. I have removed a large number of nerves, both anterior and posterior; and I have never had any other than good recoveries. With the resources of modern surgery I do not hesitate for a moment in recommending the most radical measures.

It is a radical disease; the patients are willing to have anything done, for life has become a burden to them.

As a rule I begin with a resection of the spinal accessory nerve; and this resection has been a disappointment to me in a recent operation that I did for Dr. Weir Mitchell. The posterior muscles did not seem to be involved; the nerve was resected, and yet the patient was not cured, and I do not know that she is very much better. I think, perhaps, a second operation for the division of the posterior cervical nerves may give relief. If necessary, I should not hesitate to resect the entire sternocleidomastoid as well. The posterior muscles are difficult, mechanically, to resect, and call for the best anatomical and surgical knowledge of the surgeon; but this resection is not impossible for anyone to perform, and no grave results are to be feared.

Dr. V. P. Gibney.—I quite concur with the last speaker. The subject of torticollis has interested me very much for a number of years, but my experience has been largely in the torticollis occurring in young children, or in adolescents, and not especially of the nature under discussion at present. I take it from the remarks that I have heard this morning that it is this rotary, spasmodic torticollis that has proved so obstinate in resisting treatment. I have had a number of cases myself, and I want to say that the torticollis occurring in children and adolescents especially, is that which dates from some injury to the sternocleidomastoid chiefly, and in these cases you rarely, if ever, have any of these grave disturbances. These cases are usually relieved by section of the muscles.

In regard to the more severe cases,I am just as frank as the rest of you to say, I know of no form of apparatus that offers as much relief as has been suggested or has been obtained by the absolute rest treatment or the nerve and muscle section. I have often thought that if after partial division of the muscles or stretching of the nerves, the neck could be retained for two or three months in a rigid plaster of Paris dressing, that this habit might be overcome, and that much relief might be afforded. I have employed this in two instances, but was unable to keep up treatment sufficiently long to make any assertion as to its curative effects. I reason by analogy to spastic disease of the limbs, and the gratifying results obtained from prolonged retention of the limbs in rigid plaster dressing. It seems to me that if these cases of torticollis could be so retained much good could be accomplished. It may seem that it is almost as severe to leave the patient in plaster of Paris as in bed absolutely immovable; but I can add my testimony to Dr. Keen's about operations, and if plaster of Paris is well applied to the head and to the thorax, leaving the arms quite free, the patient can go about very readily. It is not an uncommon thing in the operations at the hospital with which I am connected to divide both the cervical and clavicular ends of the muscles, and put the child up in plaster of Paris then and there, and on the second day have the child up and about, and in fact in one case we had a child operated on on Wednesday, who went to the circus on Thursday or Friday.

In regard to gelsemium, I myself, a number of years ago, when Dr. Mitchell brought this subject up, treated the case of a boy with rotary spasm of the neck with most gratifying results, having reached toxic doses. I have since tried it repeatedly in adult cases, and never had any results whatever, so that this case of mine is unique so far as my experience goes.

Dr. J. J. Putnam.—The subject of the therapeutics of torticollis has been discussed pretty fully, but there is one part of it to which allusion has scarcely been made, and that seems to me to be the most important, on the whole, and that is the methodical education of the muscles, or co-ordinating centres. It seems to me that even where the surgical treatment is used this education of the muscles is an essential after-treatment. Dr. Walton referred to massage as something that might be tried, but on the whole not amounting to much. Massage, however useful it is if given by a skilful person, is really only one part of this method. I know of one patient who cured himself by an effort of the will and gradual training. My colleague, Dr. Coggeshall, has reported excellent results in the way of absolute cures. The method of Kocher, though ostensibly surgical, is really based on a system of muscular training; the muscles are divided instead of the nerves, and although the treatment acts as a suggestion to the nervous system, still, it is specifically said that the suggestion is only a part of an educational method. The objection to this method is that it takes time, many months, and possibly several years, to get a satisfactory result; but during that time the patient is slowly and satisfactorily improving, if he is willing to devote the proper kind of attention to it.

Dr. Langdon.—My experience with this affection has been exceedingly limited, but I call to mind one case in particular which presents certain points that may be of interest in connection with this subject. First, with regard to the question of cause. The patient was a trolley car conductor, having in the course of his occupation to bend his head back in order to adjust the pole of the car on the wire. He had a very violent form of spasmodic torticollis, according to my diagnosis, and on account of its sudden onset and the youth of the patient—he was twenty-two or twenty-three—I was inclined to take a rather favorable view of it, and in accordance with that view two or three electrical applications were attended with very remarkable curative results for a time; but the spasm would come on worse than ever in the course of a few hours. After giving him the usual course of sedative treatment, with the exception of gelsemium, and without improvement in the symptoms, I was almost inclined to think that there was a gross lesion connected with the vertebral column. He went to the hospital, where they blistered him and used various other treatments, but with no result. Then I adopted the plan of treatment which I had seen used by Bastian in hysterical contracture with good results; I put him to bed; kept him on milk diet and asleep with bromide and chloral sufficient to stupefy him for three weeks. He went out of the hospital perfectly well, and I think it likely that he remains well since. If a return of the spasm should occur, I think the patient would be very apt to report promptly for further treatment.

Dr. W. M. Leszynsky, of New York.—Some of those present may remember that I published some years ago an account of a case of clonic torticollis that was cured by the subcutaneous injection of atropine in increasing doses. I also reported an analogous case of clonic spasm affecting the platysma which was cured in the same manner.

A lady thirty-five years of age has been under my constant observation during the past eighteen months. The clonic spasm had previously existed for six months and involved the sternomastoid, trapezius and splenius capitis. The sternomastoid was hypertrophied to nearly four times its natural size. Atropine treatment could not be continued owing to idiosyncrasy. Conium and gelsemium failed. After prolonged rest and tonic treatment, together with local massage, passive movements and educational gymnastics faithfully and persistently carried out, the clonic spasm has been absolutely cured, having been absent for nearly ten months. This has, however, been replaced by a mild form of tonic spasm remittent in character and involving the trapezius and splenius. The sternomastoid has resumed its normal condition. A peculiar feature was the high specific gravity of the urine, which was due to urates. Whenever it rose to 1030 or 1034 the spasm increased, seemingly indicating an autotoxic irritative element in this case. It seems to me that the most important point is to treat these patients early, by prolonged rest in bed, massage, etc., and if this were done fewer cases would advance to such a stage as to require surgical operation.

Dr. Prince.—Regarding the efficacy of the surgical treatment, it seems to me that enough patients have been treated in this way to prove that it is efficacious. It certainly seems to me a rational treatment, and if there is no other way of curing them, I for one should not hesitate to advise the radical surgical operation. But while giving full credit to this means, I do think that Dr. Walton has not given equal credit to other methods of treatment, which should be tried first.

I have never seen any beneficial results follow the drug treatment. I have tried in three or four cases the atropine treatment, pushed to intoxicating doses, but I was disappointed in each case in obtaining no result. On the other hand, very beneficial results were obtained in one case, of which I have knowledge, by the use of massage, intelligently applied, as referred to by Dr. Putnam. The case had been treated medically by me without benefit, and I felt justified in referring it to a surgeon for operation. Fortunately he took a conservative view and preferred to try the massage treatment first, and she was put in Dr. Coggeshall's hands for this purpose. Dr. Coggeshall not long since told me that the treatment had been successful, and that she is now perfectly well.

On the other hand, there are certain cases of a moderate severity which, although not curable by drugs, or rest, or anything else, yet are not sufficiently severe to warrant surgical operation, and get along with some sort of apparatus.

Regarding the nature of this affection, it seems to me that all analogy shows that these cases are, as has been suggested, pathologically very similar to, if not identical with, the occupation neuroses. A case of my own is suggestive of this fact; namely, a young woman who not only had severe torticollis, but also had occupation neurosis, piano-player's finger. Taking writer's cramp as a type of the occupation neuroses, analysis shows that one form, at least, consists in the overaction of certain muscles which have been combined with one another as a result of education. The spasm must represent the overactivity of a physiological process, so that it may be looked upon as quasi-physiological. Over-education, so to speak, has produced it, instead of the muscles contracting with a delicately balanced force, they do so with an excessive force. From the point of view from which I am speaking, it does not matter whether the reason for this be in the muscles or in the centres. I am inclined to believe it is in the centres, but however this may be, the spasm is an excessive contraction forming part of an associated group of movements, and therefore quasi-physiological. Now, it is highly probable that the only difference between torticollis and the spasm of writer's cramp is that in the latter the exciting cause (attempts to write) are intermittent, and therefore the spasms are intermittent; while in torticollis the exciting cause is continuous and the spasms are likewise continuous.

Returning to treatment, it would seem, theoretically, that by rest and the education of a new set of movements, we might accomplish something. This, of course, is easier to do in writer's cramp than in torticollis, for obvious reasons. I can recall one case of writer's cramp which I cured by giving the patient an apparatus which held the pen by the use of the antagonistic movements; that is, by extending the fingers instead of flexing them. The patient can now write as well as ever. It seems to me that the combined treatment of torticollis by education, massage and rest should be tried before resorting to an operation.

Dr. Wharton Sinkler.—To my mind, there are three distinct types of spasmodic torticollis; first, the hysterical type; secondly, the type dependent upon affections of the spinal accessory nerve outside of the foramen; and thirdly, that which is cortical in its origin. The hysterical form very closely simulates the organic form. The intermittency of movements, the position of the head, and the muscles involved, all make it in outward appearance identical with organic forms. This type is very readily cured by proper treatment.

There is also a variety of spasmodic torticollis which is the result of irritation of the spinal accessory nerve outside of the foramen, and which results from over-use of the neck muscles, and I think undoubtedly at times this is a form of occupation neurosis. The treatment which is most successful is absolute rest in bed, with properly applied massage, and educational movements of the muscles. There are two remedies which I have found to give distinct relief; these are gelsemium, pushed to its physiological limit, and conium. I have treated at least two cases by conium in which complete recovery resulted.

In cases in which the ordinary medicinal means, rest, and proper exercise of the muscle fail to relieve the affection, I think we must be driven to the conclusion that there is a cortical lesion, and in such cases I do not think that, as a rule, any surgical interference is of much value. I have seen a number of patients who have been subjected to excision of the spinal accessory nerve, and in some the cervical nerves have also been divided, but with unsatisfactory results in nearly every case. The patient to whom Dr. Keen referred was, I think, a patient of mine, a blacksmith, who was a large and vigorous man; both spinal accessories were divided with absolutely no benefit, and later, the cervical spinal nerves were cut, but the movements of the head persisted.

Dr. W. W. Keen.—I think in his last statement Dr. Sinkler is in error. The patient declined any cortical operation because he was so much better. To be sure there was no immediate benefit, but the man was able to return to his work. The head was not still, but it was relatively quiet.

(*To be continued in the November number.*)